

## **REMARKS**

The present Amendment is in response to the Examiner's Office Action mailed November 8, 2005. Claims 1-49 are now pending in view of the above amendments.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, the Applicant requests that the Examiner carefully review any references discussed below to ensure that the Applicant's understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

### **I. PRIOR ART REJECTIONS**

#### **A. Rejection Under 35 U.S.C. § 103**

The Examiner rejects claims 1-7 and 18-49 under 35 U.S.C. § 103 as being unpatentable over *Heil* (U.S. Patent No. 6,944,152) in view of *Weber* (U.S. Patent No. 6,732,104)<sup>1</sup>. The Applicant traverses the Examiner's rejection for obviousness on the grounds that the references – either individually or in combination – fail to teach or suggest each and every element of the rejected claims.

According to the applicable statute, a claimed invention is unpatentable for obviousness if the differences between it and the prior art “are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art....” 35 U.S.C. § 103(a) (2005); *Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966); MPEP 2142. Obviousness is a legal question based on underlying factual determinations including: (1)

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<sup>1</sup> As both *Heil* and *Weber* are only available under 35 U.S.C. 102(e), Applicant reserves the right to swear behind either reference.

the scope and content of the prior art, including what that prior art teaches explicitly and inherently; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *Graham*, 383 U.S. at 17-18; *In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999). It is the initial burden of the PTO to demonstrate a *prima facie* case of obviousness, which requires the PTO to show that the relied upon references teach or suggest all of the limitations of the claims. MPEP 2142 (emphasis added).

*Heil* teaches the use of a switched fabric, as opposed to a shared bus, to establish a data transfer path between a host device and a storage device. *See Title*. The difference between a switched fabric and a shared bus is illustrated in Figures 1 and 2 of *Heil*. *Heil* teaches that because there are three data paths 110 between the switch 111 and the storage devices 106 and only one link 108 between the switch 111 and the host device 108, the link 108 between the switch 111 and the host 104 becomes the limiting factor in the overall data transfer speed of the switched fabric 102. Col. 6, lines 20-24. *Heil* uses a conventional concept referred to as an “edge switch” to resolve this problem by creating an asymmetrical data transfer rate between the different links of the switch. Col. 6, lines 20-25; col. 9, lines 24-34. “An edge switch has a relatively high data transfer speed for one or two connections (e.g. the host-side communication path 108) and a relatively lower data transfer speed for the other connections (e.g. the storage-side communication paths 110).” Col 6, lines 25-30.

*Heil* merely describes the physical links of a SAN. *Heil* does not relate to configuration or logical path selection. Rather, the paths in *Heil* are merely used in reference to a way of sending read and write commands and does not relate to provisioning. As the Examiner articulates on page 3, lines 2-4 of the Office Action, *Heil* does not teach parameterizing a set of attributes for a desired data path between a process and a storage device of a SAN. However, because *Heil* does not teach parameterizing the set of attributes for a desired data path between the process and the storage device of the SAN, it logically follows that *Heil* also does not disclose “constructing the data path that provides said set of attributes.” Thus, the Applicant respectfully traverses the rejection of independent claim 1 at least for the reason that *Heil* does not disclose the elements of independent claim 1 as asserted in the Office Action. Similar logic is applied to traverse the rejections of independent claims 19 and 20. Therefore, the Applicant

respectfully requests that the rejection of claims 1, 19, and 20 be withdrawn at least for the reason that the *Heil-Weber* combination does not teach each and every element of the claims.

*Weber* relates to uniform routing of storage access requests through redundant array controllers. See Title. Like *Heil*, *Weber* is not concerned with parameterizing or even constructing a path to a storage controller. Rather, *Weber* assumes that the path already exists. According to the Examiner on page 3:

*Weber* discloses “The data transfer paths typically extend through a conventional host bus adapter (HBA) 138 in the server 124-128, through a conventional network, or SAN, fabric ... **and** ... the logical volume 122 and the data volumes 184 are created based on attributes, or performance parameters, required by the user of the logical volume 122. Such performance parameters typically include size, transaction rate, bandwidth and RAID level, among others....” [see *Weber*; column 8, lines 26-49; column 5, lines 6-33].

(Emphasis added).

This section cited by the Examiner pieces together a portion of a paragraph at column 5 lines 25-28 with a portion of a paragraph at column 8, lines 35-39 to give the impression that the attributes and parameters described by *Weber* relate to provisioning data paths, when rather the attributes and parameters clearly relate to the creation of logical volumes 122 and data volumes 184. This piecemeal support relied upon in the Office Action is the basis of the Examiner’s assertion that *Weber* teaches “a method and apparatus for parameterizing the set of attributes for a desired data path.” See Office Action page 3, lines 12-15. However, this mischaracterization fails to consider the plain language of the entire excerpts and ignores the three columns of text between these small pieces of *Weber*’s teachings.

For example, column 8, lines 25-39 of *Weber* sets forth the following:

The remote manager 136 (FIG. 2) controls the creation of the data volumes 184 (FIG. 3) and the logical volumes 122 (FIG. 2) and the configuration of the I/O devices 164-172 (FIG. 3) according to a procedure 190 shown in FIG. 4. The procedure 190 starts at step 192. At step 194, the logical volume 122 is created with its component data volumes 184. The storage space is set aside, or reserved, in the storage devices (not shown) in the storage arrays 174-178 (FIG. 3) for the data volumes 184 that make up the logical volume 122. Generally, the logical volume 122 and the data volumes 184 are created based on attributes, or performance parameters, required by the user of the logical volume 122. Such performance parameters typically include size, transaction rate, bandwidth and RAID level, among others.

(Emphasis added).

As shown by the entire portion of the section relied upon by the Office Action, this excerpt of *Weber* does not disclose “teachings of a method and apparatus for parameterizing the set of attributes for a desired data path” as purported, but rather, creation of “logical volume 122 and the data volumes 184 based on attributes, or performance parameters, required by the user of the logical volume 122.” (Emphasis added).

It is well established that “every limitation positively recited in a claim must be given effect in order to determine what subject matter that claim defines.” *In re Wilder*, 166 USPQ 545, 548 (CCPA 1970); *See also In re Wilson*, 165 USPQ 494 (CCPA 1970) (“all words in a claim must be considered in judging the patentability of that claim against the prior art”).

The teachings of *Heil* and *Weber* are in contrast to the limitations set forth in the Applicant’s claims. For example, independent claim 1 recites the following:

1. A method of creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN, the method comprising:  
parameterizing a set of attributes for a desired data path between the process and the storage device of the SAN; and  
constructing the data path that provides said set of attributes.

(Emphasis added).

By contrast to the presently claimed invention, the combination of *Heil* and *Weber* does not teach or suggest “parameterizing a set of attributes for a desired data path between the process and the storage device of the SAN; and constructing the data path that provides said set of attributes” along with the other elements set forth in claim 1. In view of the *Heil-Weber* combination’s failure to teach every element of claim 1, the Applicant submits that the Examiner has failed to set forth a *prima facie* case for obviousness and respectfully request that the rejection be withdrawn at least for this reason. Claims 2-18, 21, 27, 31, 32, 41, 44, and 47 depend from claim 1. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Therefore, the Applicant respectfully requests the rejection of claims 2-18, 21, 27, 31, 32, 41, 44, and 47 be withdrawn at least due to their dependence from independent claim 1.

Independent claim 19 recites the following:

19. A method of configuring a SAN, the SAN providing connectivity between a server and a storage device in the SAN, the method comprising:  
discovering, by use of an external data path engine coupled to the SAN, processes that are operable on a server coupled to the SAN;  
discovering, by use of said external data path engine coupled to the SAN, storage devices that are included in the SAN;  
responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes; and  
constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes.

As described above, the combination of *Heil* and *Weber* does not teach “responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes; and constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes” in combination with the other elements set forth in claim 19. Therefore, the Applicant respectfully requests that the rejection of claim 19 be withdrawn. Claims 23, 24, 28, 30, 33-38, 42, 45, and 48 depend from claim 19. Therefore, the Applicant respectfully requests the rejection of claims 23, 24, 28, 30, 33-38, 42, 45, and 48 be withdrawn at least for the same reasons as independent claim 19.

Independent claim 20 recites the following:

20. Apparatus for creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN. the method comprising:  
means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN; and  
means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes.

(Emphasis added).

As described above, the combination of *Heil* and *Weber* does not teach “means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN; and means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes.” Therefore, the Applicant respectfully requests that the rejection of claim 20 be withdrawn. Claims 25, 26, 29, 39, 40, 43, 46, and 49 depend from claim 20.

Therefore, the Applicant respectfully requests that the rejection of claims 25, 26, 29, 39, 40, 43, 46, and 49 be withdrawn at least for the same reasons as independent claim 20.

The Applicant further traverses the Examiner's rejection of independent claims 1, 19, and 20 for obviousness on the grounds that the Examiner's combination of *Heil* with *Weber* is improper as it is based on impermissible hindsight reconstruction of the Applicant's claimed invention.

The final step of the obviousness inquiry requires that concrete evidence of motivation for the missing elements be clearly set forth. "[The Patent Office] may not, because it may doubt that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis." *In re Warner*, 154, USPQ 173, 178 (CCPA 1967) (emphasis added). Missing from the combination of *Heil* and *Weber* is the "logical reason apparent from positive, concrete evidence of record" (*In re Regel*, 188 USPQ 136, 139 n.5 (CCPA 1975)) why one of ordinary skill in the art would have been motivated to parameterize a set of attributes for a desired data path between the process and the storage device of the SAN, and construct the data path that provides said set of attributes as set forth in claim 1, for example. The elements of independent claims 1, 19, and 20 are simply not taught by either *Heil* or *Weber*. The PTO must point to some concrete evidence in the record in support of the findings. *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (emphasis added; footnote omitted).

It is error to reconstruct the Applicant's claimed invention from the prior art by using the patentee's claim as a "blueprint." Rather the references must be viewed without the benefit of the Applicant's teachings. The teaching or suggestion to make the modification or combination of prior art and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991) (emphasis added). When prior art references require selective combination of discrete portions of a reference, such as the selective portions of *Weber* and *Heil* relied upon in the rejection, to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight obtained from the Applicant's invention itself. It is critical to understand the particular results achieved by the new combination. *Interconnect Planning Corp v. Feil*, 774 F.2d 1132

(Fed. Cir. 1985). Quite simply, the teaching and suggestion for constructing a data path as set forth in the Applicant's claims can only be found in the Applicant's disclosure and not in the references cited in the Office Action. Therefore, Applicant respectfully requests that the rejections of claims 1-49 be withdrawn as based on impermissible hindsight reconstruction of the Applicant's claimed invention.

The Examiner rejects claims 8-17 under 35 U.S.C. § 103 as being unpatentable over *Heil* in view of *Weber* further in view of *Stumer* (U.S. Patent No. 6,195,336). Claims 8-17 depend from claim 1. As described above, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. Therefore, the Applicant respectfully requests that the rejection of claims 8-17 be withdrawn at least for the same reasons as claim 1.

### CONCLUSION

The foregoing amendments and remarks were submitted on February 8, 2006 within the shortened statutory period as evidenced by the copy of the return postcard and express mail label supplied in Appendix A attached hereto. Moreover, no extension fee or reduction in patent term extension should be applied for submission of this response because the Amendment of February 8 was submitted within the shortened time period and the delay was at no fault of the Applicant.

In view of the foregoing, the Applicant believes the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 16<sup>th</sup> day of May, 2006.

Respectfully submitted,



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Registration No. 50,004  
Attorney for Applicant  
Customer No. 022913  
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APPENDIX A

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**Submitted:**

Amendment Transmittal Letter (1 pg); Request for  
Reconsideration (17 pgs); Certificate of Express Mail Label  
No. EV 632 712 370 US (1 pg); and Postcard

Applicants: Christina Woody Mercer

Title: AUTOMATED CREATION OF DATA PATHS IN STORAGE  
AREA NETWORKS

Serial No.: 10/896,408

Filed: June 28, 2001

Date of Mailing: February 8, 2006

Docket No.: 15436.860



EV 632712370 US

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**CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)**

Applicant(s): Christina Woody Mercier

Docket No.

15436.860

Application No.

10/896,408

Filing Date

June 28, 2001

Examiner

Jude Jean Gilles

Customer No.

022913

Group Art Unit

2143

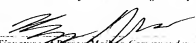
Invention:

**AUTOMATED CREATION OF DATA PATHS IN STORAGE AREA NETWORKS**

I hereby certify that the following correspondence:

**Amendment Transmittal Letter (1 pg); Request for Reconsideration (17 pgs); Certificate of Express Mail Label No. EV 632 712 370 US (1 pg); and Postcard***(Identify type of correspondence)*

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

**February 8, 2006***(Date)***Kysa J. Nord***(Typed or Printed Name of Person Mailing Correspondence)*  
*(Signature of Person Mailing Correspondence)***EV 632 712 370 US***("Express Mail" Mailing Label Number)*

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**EV632712370US**

**AMENDMENT TRANSMITTAL LETTER (Large Entity)**Applicant(s): **Christina Woody Mercier**

Docket No.

**15436.860**

Application No.

**10/896,408**

Filing Date

**June 28, 2001**

Examiner

**Jude Jean Gilles**

Customer No.

**022913**

Group Art Unit

**2143**

Confirmation No.

**2281**

Invention:

**AUTOMATED CREATION OF DATA PATHS IN STORAGE AREA NETWORKS**COMMISSIONER FOR PATENTS:

Transmitted herewith is an amendment in the above-identified application.


The fee has been calculated and is transmitted as shown below.

**CLAIMS AS AMENDED**

	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST # PREV. PAID FOR	NUMBER EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	49 -	49 =	0	x \$50.00	\$0.00
INDEP. CLAIMS	3 -	3 =	0	x \$200.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT					\$0.00

- ☒ No additional fee is required for amendment.
- ☐ Please charge Deposit Account No. \_\_\_\_\_ in the amount of \_\_\_\_\_
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SignatureDated: **February 8, 2006**

**David A. Jones**  
**Attorney for Applicant**  
**Registration No. 50.004**

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PATENT APPLICATION  
Docket No. 15436.860

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:		)
		)
	Christina Woody Mercier	)
		)
Serial No.:	10/896,408	) Art Unit
		) 2143
Filed:	June 28, 2001	)
		)
For:	AUTOMATED CREATION OF DATA	)
	PATHS IN STORAGE AREA NETWORKS	)
		)
Confirmation No.:	2281	)
		)
Customer No.:	022913	)
		)
Examiner:	Jude Jean Gilles	)

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.111

Mail Stop AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office action mailed November 8, 2005 (the "Office Action"), the Applicant responds as follows:

**A listing of the claims** begins on page 2 of this paper.

**Remarks/Arguments** begin on page 10 of this paper.

### **LISTING OF THE CLAIMS**

*The listing of claims will replace all prior versions and listings of claims in the application:*

#### **Listing of Claims:**

1. (Previously Presented) A method of creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN, the method comprising:  
parameterizing a set of attributes for a desired data path between the process and the storage device of the SAN; and  
constructing the data path that provides said set of attributes.
2. (Original) The method of claim 1 wherein said set of attributes includes a pre-defined template.
3. (Previously Presented) The method of claim 2 wherein said set of attributes includes a data path owner, application, and the server on which the application is executing.
4. (Original) The method of claim 2 wherein said pre-defined template specifies a set of performance, availability, and cost metrics for the desired data path.
5. (Original) The method of claim 4 wherein said set of performance and availability metrics includes at least one of a number of threads, a security level, and a default volume size and characteristics, default path characteristics.
6. (Original) The method of claim 1 wherein said parameterizing step includes a step of entering a user-defined attribute for inclusion in said set of attributes.
7. (Original) The method of claim 6 wherein said entering step includes entry of said

user-defined attribute by use of a graphical user interface coupled to the SAN.

8. (Previously Presented) The method of claim 1 wherein said constructing step further comprises:
  - searching the SAN for a set of candidate storage devices;
  - constructing a candidate data path from the server to each candidate storage device of said set of candidate storage devices;
  - evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric; and
  - selecting said best candidate data path as the data path to be constructed by said constructing step.
9. (Previously Presented) The method of claim 1 wherein said constructing step further comprises:
  - searching the SAN for a set of candidate storage devices;
  - constructing a candidate data path from the server to each candidate storage device of said set of candidate storage devices;
  - evaluating each said candidate data path against a selection metric to rank said candidate data paths from a best candidate data path to a least best candidate data path according to said selection metric;
  - presenting said ranked candidate data paths to a user for selection; and
  - selecting a user-selected candidate data path as the data path to be constructed by said constructing step.
10. (Original) The method of claim 9 wherein said presenting step recommends said best candidate data path for selection by said user.
11. (Original) The method of claim 10 wherein said best candidate data path is presented as a default selection at said selecting step.



12. (Previously Presented) The method of claim 9 wherein said selection metric includes storage device uptime information.
13. (Original) The method of claim 9 wherein said selection metric includes performance information.
14. (Original) The method of claim 9 wherein said selection metric includes cost calculation.
15. (Original) The method of claim 9 wherein said selection metric includes best SAN practices information.
16. (Original) The method of claim 9 wherein said selection metric includes learned state and usage information of the SAN.
17. (Original) The method of claim 9 wherein said searching step prequalifies a subset of candidate data paths by finding those candidates that satisfy a pre-created policy prior to application of said evaluating step.
18. (Original) The method of claim 1 wherein said constructed data path includes all physical, logical and security component identification and configuration information sufficient to operably link the process to an identified data volume of the SAN.

19. (Previously Presented) A method of configuring a SAN, the SAN providing connectivity between a server and a storage device in the SAN, the method comprising:

discovering, by use of an external data path engine coupled to the SAN, processes that are operable on a server coupled to the SAN;

discovering, by use of said external data path engine coupled to the SAN, storage devices that are included in the SAN;

responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes; and

constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes.

20. (Previously Presented) Apparatus for creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN. the method comprising:

means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN; and

means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes.

21. (Previously Presented) The method of claim 1, constructing the data path comprising automatically constructing a datapath having one or more channels or threads.

22. (Previously Presented) The method of claim 21, the one or more channels or threads being one or more fibre channel connections.

23. (Previously Presented) The method of claim 19, constructing the data path comprising automatically constructing a datapath having one or more channels or threads.

24. (Previously Presented) The method of claim 23, the one or more channels or threads being one or more fibre channel connections.

25. (Previously Presented) The apparatus of claim 20, the data path being constructed automatically and having one or more channels or threads.

26. (Previously Presented) The apparatus of claim 25, the one or more channels or threads being one or more fibre channel connections.

27. (Previously Presented) The method of claim 1, constructing the data path that provides said set of attributes being performed without user or administrator intervention.

28. (Previously Presented) The method of claim 19, constructing the data path that provides said set of attributes being performed without user or administrator intervention.
29. (Previously Presented) The apparatus of claim 20, the data path being constructed without user or administrator intervention.
30. (Previously Presented) The method of claim 19, discovering storage devices that are included in the SAN being performed automatically.
31. (Previously Presented) The method of claim 1, further comprising:  
connecting the SAN to a Wide Area Network (WAN) through a general purpose computer; and  
communicating with another processing system through the WAN using the general purpose computer.
32. (Previously Presented) The method of claim 31, communicating with another processing system comprising communicating with a server by using a TCP/IP protocol.
33. (Previously Presented) The method of claim 19, the external data path engine being operated as part of a general purpose computer.
34. (Previously Presented) The method of claim 33, the external data path engine being coupled to a switching network of the SAN.
35. (Previously Presented) The method of claim 33, the general purpose computer being connected to a Wide Area Network (WAN).
36. (Previously Presented) The method of claim 35, the general purpose computer being connectable to a plurality of other devices, networks or locations through the WAN.

37. (Previously Presented) The method of claim 35, further comprising communicating with another processing system through the WAN using the general purpose computer.
38. (Previously Presented) The method of claim 37, communicating with another processing system comprising communicating with a server using a TCP/IP protocol.
39. (Previously Presented) The apparatus of claim 20, further comprising:  
a general purpose computer, the means for constructing the data path being operated as part of the general purpose computer;  
a Wide Area Network (WAN), the general purpose computer being connected to the WAN, the general purpose computer communicating with another processing system through the WAN.
40. (Previously Presented) The apparatus of claim 39, the general purpose computer communicating with a server using a TCP/IP protocol.
41. (Previously Presented) The method of claim 1, constructing the data path comprising automatically constructing a data path that provides said set of attributes.
42. (Previously Presented) The method of claim 19, constructing the data path comprising automatically constructing a data path that provides said set of attributes.
43. (Previously Presented) The apparatus of claim 20, the means for constructing the data path automatically constructing the data path.
44. (Previously Presented) The method of claim 1, constructing the data path comprising constructing a data path across multiple networks.
45. (Previously Presented) The method of claim 19, constructing the data path comprising constructing a data path across multiple networks.

46. (Previously Presented) The apparatus of claim 20, the means for constructing the data path constructing the data path across multiple networks.

47. (Previously Presented) The method of claim 1, constructing the data path comprising constructing a data path across multiple locations.

48. (Previously Presented) The method of claim 19, constructing the data path comprising constructing a data path across multiple locations.

49. (Previously Presented) The apparatus of claim 20, the means for constructing the data path constructing the data path across multiple locations.

## **REMARKS**

The present Amendment is in response to the Examiner's Office Action mailed November 8, 2005. Claims 1-49 are now pending in view of the above amendments.

Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, the Applicant requests that the Examiner carefully review any references discussed below to ensure that the Applicant's understanding and discussion of the references, if any, is consistent with the Examiner's understanding.

### **I. PRIOR ART REJECTIONS**

#### **A. Rejection Under 35 U.S.C. § 103**

The Examiner rejects claims 1-7 and 18-49 under 35 U.S.C. § 103 as being unpatentable over *Heil* (U.S. Patent No. 6,944,152) in view of *Weber* (U.S. Patent No. 6,732,104)<sup>1</sup>. The Applicant traverses the Examiner's rejection for obviousness on the grounds that the references – either individually or in combination – fail to teach or suggest each and every element of the rejected claims.

According to the applicable statute, a claimed invention is unpatentable for obviousness if the differences between it and the prior art “are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art....” 35 U.S.C. § 103(a) (2005); *Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966); MPEP 2142. Obviousness is a legal question based on underlying factual determinations including: (1)

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<sup>1</sup> As both *Heil* and *Weber* are only available under 35 U.S.C. 102(c), Applicant reserves the right to swear behind either reference.

the scope and content of the prior art, including what that prior art teaches explicitly and inherently; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *Graham*, 383 U.S. at 17-18; *In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999). It is the initial burden of the PTO to demonstrate a *prima facie* case of obviousness, which requires the PTO to show that the relied upon references teach or suggest all of the limitations of the claims. MPEP 2142 (emphasis added).

*Heil* teaches the use of a switched fabric, as opposed to a shared bus, to establish a data transfer path between a host device and a storage device. *See* Title. The difference between a switched fabric and a shared bus is illustrated in Figures 1 and 2 of *Heil*. *Heil* teaches that because there are three data paths 110 between the switch 111 and the storage devices 106 and only one link 108 between the switch 111 and the host device 108, the link 108 between the switch 111 and the host 104 becomes the limiting factor in the overall data transfer speed of the switched fabric 102. Col. 6, lines 20-24. *Heil* uses a conventional concept referred to as an “edge switch” to resolve this problem by creating an asymmetrical data transfer rate between the different links of the switch. Col. 6, lines 20-25; col. 9, lines 24-34. “An edge switch has a relatively high data transfer speed for one or two connections (e.g. the host-side communication path 108) and a relatively lower data transfer speed for the other connections (e.g. the storage-side communication paths 110).” Col 6, lines 25-30.

*Heil* merely describes the physical links of a SAN. *Heil* does not relate to configuration or logical path selection. Rather, the paths in *Heil* are merely used in reference to a way of sending read and write commands and does not relate to provisioning. As the Examiner articulates on page 3, lines 2-4 of the Office Action, *Heil* does not teach parameterizing a set of attributes for a desired data path between a process and a storage device of a SAN. However, because *Heil* does not teach parameterizing the set of attributes for a desired data path between the process and the storage device of the SAN, it logically follows that *Heil* also does not disclose “constructing the data path that provides said set of attributes.” Thus, the Applicant respectfully traverses the rejection of independent claim 1 at least for the reason that *Heil* does not disclose the elements of independent claim 1 as asserted in the Office Action. Similar logic is applied to traverse the rejections of independent claims 19 and 20. Therefore, the Applicant



respectfully requests that the rejection of claims 1, 19, and 20 be withdrawn at least for the reason that the *Heil-Weber* combination does not teach each and every element of the claims.

*Weber* relates to uniform routing of storage access requests through redundant array controllers. See Title. Like *Heil*, *Weber* is not concerned with parameterizing or even constructing a path to a storage controller. Rather, *Weber* assumes that the path already exists. According to the Examiner on page 3:

*Weber* discloses "The data transfer paths typically extend through a conventional host bus adapter (HBA) 138 in the server 124-128, through a conventional network, or SAN, fabric ... **and** ... the logical volume 122 and the data volumes 184 are created based on attributes, or performance parameters, required by the user of the logical volume 122. Such performance parameters typically include size, transaction rate, bandwidth and RAID level, among others...." [see *Weber*; column 8, lines 26-49; column 5, lines 6-33].

(Emphasis added).

This section cited by the Examiner pieces together a portion of a paragraph at column 5 lines 25-28 with a portion of a paragraph at column 8, lines 35-39 to give the impression that the attributes and parameters described by *Weber* relate to provisioning data paths, when rather the attributes and parameters clearly relate to the creation of logical volumes 122 and data volumes 184. This piecemeal support relied upon in the Office Action is the basis of the Examiner's assertion that *Weber* teaches "a method and apparatus for parameterizing the set of attributes for a desired data path." See Office Action page 3, lines 12-15. However, this mischaracterization fails to consider the plain language of the entire excerpts and ignores the three columns of text between these small pieces of *Weber*'s teachings.

For example, column 8, lines 25-39 of *Weber* sets forth the following:

The remote manager 136 (FIG. 2) controls the creation of the data volumes 184 (FIG. 3) and the logical volumes 122 (FIG. 2) and the configuration of the I/O devices 164-172 (FIG. 3) according to a procedure 190 shown in FIG. 4. The procedure 190 starts at step 192. At step 194, the logical volume 122 is created with its component data volumes 184. The storage space is set aside, or reserved, in the storage devices (not shown) in the storage arrays 174-178 (FIG. 3) for the data volumes 184 that make up the logical volume 122. Generally, the logical volume 122 and the data volumes 184 are created based on attributes, or performance parameters, required by the user of the logical volume 122. Such performance parameters typically include size, transaction rate, bandwidth and RAID level, among others.

(Emphasis added).

As shown by the entire portion of the section relied upon by the Office Action, this excerpt of *Weber* does not disclose “teachings of a method and apparatus for parameterizing the set of attributes for a desired data path” as purported, but rather, creation of “logical volume 122 and the data volumes 184 based on attributes, or performance parameters, required by the user of the logical volume 122.” (Emphasis added).

It is well established that “every limitation positively recited in a claim must be given effect in order to determine what subject matter that claim defines.” *In re Wilder*, 166 USPQ 545, 548 (CCPA 1970); *See also In re Wilson*, 165 USPQ 494 (CCPA 1970) (“all words in a claim must be considered in judging the patentability of that claim against the prior art”).

The teachings of *Heil* and *Weber* are in contrast to the limitations set forth in the Applicant’s claims. For example, independent claim 1 recites the following:

1. A method of creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN, the method comprising:  
parameterizing a set of attributes for a desired data path between the process and the storage device of the SAN; and  
constructing the data path that provides said set of attributes.

(Emphasis added).

By contrast to the presently claimed invention, the combination of *Heil* and *Weber* does not teach or suggest “parameterizing a set of attributes for a desired data path between the process and the storage device of the SAN; and constructing the data path that provides said set of attributes” along with the other elements set forth in claim 1. In view of the *Heil-Weber* combination’s failure to teach every element of claim 1, the Applicant submits that the Examiner has failed to set forth a *prima facie* case for obviousness and respectfully request that the rejection be withdrawn at least for this reason. Claims 2-18, 21, 27, 31, 32, 41, 44, and 47 depend from claim 1. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Therefore, the Applicant respectfully requests the rejection of claims 2-18, 21, 27, 31, 32, 41, 44, and 47 be withdrawn at least due to their dependence from independent claim 1.

Independent claim 19 recites the following:

19. A method of configuring a SAN, the SAN providing connectivity between a server and a storage device in the SAN, the method comprising:  
discovering, by use of an external data path engine coupled to the SAN, processes that are operable on a server coupled to the SAN;  
discovering, by use of said external data path engine coupled to the SAN, storage devices that are included in the SAN;  
responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes; and  
constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes.

As described above, the combination of *Heil* and *Weber* does not teach “responding, by use of said external data path engine coupled to the SAN, to a data path construction request from a user by providing said user with an interface to accept a set of attributes for a desired data path for one of said discovered processes; and constructing, by use of the external data path engine coupled to the SAN, the data path that provides said set of attributes” in combination with the other elements set forth in claim 19. Therefore, the Applicant respectfully requests that the rejection of claim 19 be withdrawn. Claims 23, 24, 28, 30, 33-38, 42, 45, and 48 depend from claim 19. Therefore, the Applicant respectfully requests the rejection of claims 23, 24, 28, 30, 33-38, 42, 45, and 48 be withdrawn at least for the same reasons as independent claim 19.

Independent claim 20 recites the following:

20. Apparatus for creating a data path for a process executing on a server coupled to a storage area network (SAN), the SAN providing connectivity between the server and a storage device in the SAN, the method comprising:  
means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN; and  
means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes.

(Emphasis added).

As described above, the combination of *Heil* and *Weber* does not teach “means for parameterizing a set of attributes for a desired data path between the process and a storage device of the SAN; and means, coupled to said parameterizing means, for constructing the data path that provides said set of attributes.” Therefore, the Applicant respectfully requests that the rejection of claim 20 be withdrawn. Claims 25, 26, 29, 39, 40, 43, 46, and 49 depend from claim 20.

Therefore, the Applicant respectfully requests that the rejection of claims 25, 26, 29, 39, 40, 43, 46, and 49 be withdrawn at least for the same reasons as independent claim 20.

The Applicant further traverses the Examiner's rejection of independent claims 1, 19, and 20 for obviousness on the grounds that the Examiner's combination of *Heil* with *Weber* is improper as it is based on impermissible hindsight reconstruction of the Applicant's claimed invention.

The final step of the obviousness inquiry requires that concrete evidence of motivation for the missing elements be clearly set forth. "[The Patent Office] may not, because it may doubt that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis." *In re Warner*, 154, USPQ 173, 178 (CCPA 1967) (emphasis added). Missing from the combination of *Heil* and *Weber* is the "logical reason apparent from positive, concrete evidence of record" (*In re Regel*, 188 USPQ 136, 139 n.5 (CCPA 1975)) why one of ordinary skill in the art would have been motivated to parameterize a set of attributes for a desired data path between the process and the storage device of the SAN, and construct the data path that provides said set of attributes as set forth in claim 1, for example. The elements of independent claims 1, 19, and 20 are simply not taught by either *Heil* or *Weber*. The PTO must point to some concrete evidence in the record in support of the findings. *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001) (emphasis added; footnote omitted).

It is error to reconstruct the Applicant's claimed invention from the prior art by using the patentee's claim as a "blueprint." Rather the references must be viewed without the benefit of the Applicant's teachings. The teaching or suggestion to make the modification or combination of prior art and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991) (emphasis added). When prior art references require selective combination of discrete portions of a reference, such as the selective portions of *Weber* and *Heil* relied upon in the rejection, to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight obtained from the Applicant's invention itself. It is critical to understand the particular results achieved by the new combination. *Interconnect Planning Corp v. Feil*, 774 F.2d 1132

(Fed. Cir. 1985). Quite simply, the teaching and suggestion for constructing a data path as set forth in the Applicant's claims can only be found in the Applicant's disclosure and not in the references cited in the Office Action. Therefore, Applicant respectfully requests that the rejections of claims 1-49 be withdrawn as based on impermissible hindsight reconstruction of the Applicant's claimed invention.

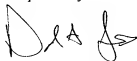
The Examiner rejects claims 8-17 under 35 U.S.C. § 103 as being unpatentable over *Heil* in view of *Weber* further in view of *Stumer* (U.S. Patent No. 6,195,336). Claims 8-17 depend from claim 1. As described above, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. Therefore, the Applicant respectfully requests that the rejection of claims 8-17 be withdrawn at least for the same reasons as claim 1.

**CONCLUSION**

In view of the foregoing, the Applicant believes the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 8 day of February, 2006.

Respectfully submitted,



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